

### **REMARKS**

In an Office Action mailed December 8, 2009, claims 1-8, 15, and 16 of the present application were rejected. Herein, claims 1 and 5 have been amended. No new matter has been added. Further, claims 15 and 16 have been cancelled without prejudice or disclaimer to the subject matter therein. Applicants respectfully request continued examination and reconsideration of the present application.

A Declaration under Rule 1.132 has been provided. Applicants respectfully submit that the Declaration, signed by one of the inventors in the present application, presents additional evidence for the patentability of the presently claimed invention. Applicants respectfully request that the content of the Declaration be thoroughly considered in assessing the patentability of the presently claimed invention.

#### **I. Claim Rejections under 35 U.S.C. 103(a)**

Claims 1-8, 15, and 16 were rejected under 35 U.S.C. §103(a) as being unpatentable over EP 1101524 (hereafter “EP ‘524”) in view of Arno (US 6,905,663), and optionally further in view of Paules (US 4,015,546). Applicants note that claims 1-8 are pending, and claims 15 and 16 have been cancelled, the subject matter of which has been added to claims 1 and 5, respectively. Applicants respectfully request reconsideration of the above-rejection based on the following.

*A. Passing the exhaust gas though the detour path formed by plural plate members during the heating step should be given patentable weight.*

Amended claim 1 recites the feature of heating an exhaust gas in the presence of O<sub>2</sub> without adding H<sub>2</sub>O and/or H<sub>2</sub> to the exhaust gas while passing the exhaust gas through a detour path formed by plural plate members.

On page 3 of the Office Action, Applicants note that the Examiner has taken the position that without a showing of criticality or unexpected results, the use of plate members in the heating step is not seen as a patentable difference because it would have been obvious to one of

ordinary skill in the art to use any conventional means to heat the gas to be treated in the process of EP '524 to the desired temperature. Applicants respectfully submit that passing the exhaust gas though a detour path formed by plural plate members during the heating step, as recited by amended claim 1, produces unexpected results in view of the prior art, and therefore, should be given patentable weight based on the following.

As noted above, a Declaration under Rule 1.132 has been providing in which additional evidence for the patentability of the presently claimed invention has been presented. In particular, the Declaration presents evidence of experimental results showing the technical advantages of passing the exhaust gas though a detour path formed by plural plate members during the heating step in comparison to not passing the exhaust gas through the detour path formed by plural plate members during the heating step.

Accordingly, Applicants respectfully submit that the advantages described in the Declaration clearly show that passing the exhaust gas though the detour path formed by plural plate members during the heating step provides unexpected results in view of the prior art in which the exhaust gas is not passed through the detour path formed by plural plate members during the heating step.

Therefore, Applicants respectfully submit that passing the exhaust gas though a detour path formed by plural plate members during the heating step, as recited by amended claim 1, should be given patentable weight.

*B. Passing the exhaust gas though the detour path formed by plural plate members during the heating step is not disclosed, suggested, or otherwise rendered obvious by any combination of the cited references.*

As noted above, amended claim 1 recites the feature of heating an exhaust gas in the presence of O<sub>2</sub> without adding H<sub>2</sub>O and/or H<sub>2</sub> to the exhaust gas while passing the exhaust gas though a detour path formed by plural plate members. Applicants respectfully submit that the

above-noted feature of amended claim 1 is not disclosed, suggested, or otherwise rendered obvious by any combination of EP '524, Arno, and Paules based on the following.

EP '524 discloses passing a waste gas through a thermal decomposition means which is supplied with  $H_2$ ,  $O_2$ , and  $H_2O$  to decompose PFCs, oxidizing gases, and CO into acidic gases and  $CO_2$  (Paragraph [0024]). However, Applicants note that EP '524 provides no disclosure as to the structure of the thermal decomposition means, that is, EP '524 does not teach passing the waste gas through a detour path formed by plural plate members during the decomposition of the PFCs, oxidizing gases, and CO into acidic gases and  $CO_2$ .

Arno discloses the treatment of a fluorocompound containing gas by passing the fluorocompound containing gas via a gas flow passage 24 through a pre-heat stage 6 to a reaction stage 7 in which steam is introduced into the gas flow passage 24 at a steam entrance 30 causing the steam to mix and react with the fluorine constituents of the gas stream (Col. 4, Lines 49-57, and FIG. 2). However, Applicants note that Arno provides no disclosure as to the structure of the gas flow passage 24 during pre-heat stage 6, that is, Arno does not teach passing the fluorocompound containing gas through a detour path formed by plural plate members during the pre-heat stage.

On page 3 of the Office Action, the Examiner takes the position that Paules can be applied to teach that it is known in the art to use baffles in a heating zone to increase the flow path of the gas to be treated to facilitate heat transfer, and that it would have been well within the skill of an artisan to select the actual design or shape of the baffles. In other words, the Examiner appears to take the position that, in view of the above-mentioned deficiencies of EP '524 and Arno, it would have been obvious to one of ordinary skill in the art to combine the baffles of Paules with the teachings of EP '524 and Arno to achieve the claimed invention. Applicants respectfully disagree that it would have been obvious to one of ordinary skill in the art to combine the baffles of Paules with the teachings of EP '524 and Arno to achieve the claimed invention, based on the following.

Paules discloses using a spiral baffle 162 extending through a heat exchange channel 160 so that an air flow is in a spiral path around a combustion chamber (Col. 11, Lines 19-21). Paules discloses that this arrangement increases the retention time of the air in the heat exchanger due to the longer path provided by the spiral baffle 162, therefore assuring the preheating of the air prior to its discharge into a combustion chamber (Col. 11, Lines 25-30).

In other words, Paules merely discloses using a spiral baffle for the preheating of air prior to the air entering a combustion chamber, that is, Paules merely discloses passing of air through a spiral path during a heating step.

In contrast to Paules, the presently claimed invention passes exhaust gas through a detour path formed by plural plate members during a heating step. In particular, amended claim 1 recites the feature of heating an exhaust gas in the presence of O<sub>2</sub> without adding H<sub>2</sub>O and/or H<sub>2</sub> to the exhaust gas while passing the exhaust gas through a detour path formed by plural plate members.

Further, regarding the Examiner's position that it would have been well within the skill of an artisan to select the actual design or shape of the baffles disclosed by Paules, Applicants respectfully submit that such a position is simply a blanket statement that it would have been obvious to modify the structures disclosed in the cited references so as to have any possible configuration, or in other words, that it would have been an obvious matter of design choice to modify such structures in any possible manner.

In view of the technical advantages that are provided by utilizing the above-noted feature recited in amended claim 1, Applicants respectfully submit that the above-noted feature of amended claim 1 would not be a matter of mere design choice to one of ordinary skill in the art.

In this regard, Applicants note that the Federal Circuit has held that a claimed invention should not be rejected as a mere "design choice" when the applicants presents evidence of the technical advantages of the applicant's structure. *See In re Chu*, 66 F.3d 292, 36 USPQ2d 1089 (Fed. Cir. 1995). Here, as described above, the Declaration under Rule 1.132 presents evidence

of experimental results showing the technical advantages of passing the exhaust gas through a detour path formed by plural plate members during the heating step in comparison to not passing the exhaust gas through the detour path formed by plural plate members during the heating step.

Therefore, because the above-noted feature of amended claim 1 confers technical advantages over the prior art in which a detour path formed of plural plate member was not used in the heating step of an exhaust gas, Applicants respectfully submit that such a feature would not have been a simple matter of design choice.

In view of the above, Applicants respectfully submit that any combination of EP '524, Arno, and Paules fails to disclose, suggest, or otherwise render obvious heating an exhaust gas in the presence of O<sub>2</sub> without adding H<sub>2</sub>O and/or H<sub>2</sub> to the exhaust gas while passing the exhaust gas through a detour path formed by plural plate members.

Therefore, Applicants respectfully submit that amended claim 1 is patentable over any combination of EP '524, Arno, and Paules.

Further, Applicants respectfully submit that claims 2-4 are patentable over any combination of EP '524, Arno, and Paules based at least on their dependency from claim 1.

Claim 5 recites the feature of heating an exhaust gas in the presence of O<sub>2</sub> without adding H<sub>2</sub>O and/or H<sub>2</sub> to the exhaust gas while passing the exhaust gas through a detour path formed by plural plate members. Applicants respectfully submit that any combination of EP '524, Arno, and Paules does not disclose, suggest, or otherwise render obvious this feature of claim 5 for reasons similar to those discussed above with respect to claim 1. Accordingly, Applicants respectfully submit that claim 5 is patentable over any combination of EP '524, Arno, and Paules.

Further, Applicants respectfully submit that claims 6-8 are patentable over any combination of EP '524, Arno, and Paules based at least on their dependency from claim 5.

Claims 1-8, 15, and 16 were rejected under 35 U.S.C. §103(a) as being unpatentable over Arno in view of EP '524, and optionally further in view of Paules. Applicants note that claims 1-8 are pending, and claims 15 and 16 are cancelled. As noted above, claims 1-8 are patentable over any combination of Arno, EP '524, and Paules. Accordingly, Applicants respectfully submit that claims 1-8 are patentable over Arno in view of EP '524, and optionally further in view of Paules.

## **II. Conclusion**

Therefore, for at least the reasons presented above, Applicants respectfully submit that independent claims 1 and 5, as well as the claims depending therefrom, are clearly allowable over the prior art of record.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the present application is clearly in condition for allowance. An early notice thereof is earnestly solicited.

If, after reviewing this Amendment, the Examiner feels that there are any issues remaining which must be resolved before the application can be passed to issue, Applicants respectfully request that the Examiner contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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